United States
Environmental Protection
Agency

Air and Radiation
(6202J)

EPA 430-B-98-000
June 1998
www.epa.gov/lmop

EPA

Landfill Gas Projects in Washington

A Primer on Developing Washington's Landfill Gas-to-Energy Potential

LANDFILL METHANE OUTREACH PROGRAM

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Contents

Introduction x

1. About the Landfill Methane Outreach Program x

2. Electricity Restructuring and LFGTE x

3. The Goals of This Primer x

4. Where to Go for More Information x

Part 1: Standards and Permits

1. Overview of Federal Standards and Permits x

1.1 Resource Conservation and Recovery Act Subtitle D x

1.2 Clean Air Act (CAA) x

NMOC Emissions: New Source Performance Standards (NSPS) x

Air Emissions: New Source Review (NSR) Permitting Process x

Title V Operating Permit x

1.3 National Pollutant Discharge Elimination System Permit (NPDES) x

1.4 Clean Water Act, Section 401 x

1.5 Other Federal Permit Programs x

2. State Standards and Permits x

3. Overview of Local Standards and Permits x

Part 2: Incentive Programs

1. Overview of Federal Incentive Programs x

1.1 Section 29 Tax Credit x

1.2 Renewable Energy Production Incentive (REPI) x

1.3 Qualifying Facilities Certification x

2. Overview of State Incentive Programs x

Tables

Table A Candidate Landfills for LFGTE Projects in Washington x

Table 2.1 Summary Table of State Standards/Permits x

Table 2.2 Permit Approval Timeline x

Table 2.3 Air Contaminant source Registration x

Table 2.4 New Source Review x

Table 2.5 Reasonably Available Control Technology Determinations x

Table 2.6 Air Operating Permits x

Table 2.7 Solid Waste Permit x

Introduction

1. About the Landfill Methane Outreach Program

The recovery of energy from landfill gas provides local and global environmental and energy benefits, as well as economic benefits. The methane captured from landfills can be transformed into a cost-effective fuel source for generating electricity and heat, firing boilers, or even powering vehicles.

To promote the use of landfill gas as an energy source, the U.S. Environmental Protection Agency (EPA) has established the Landfill Methane Outreach Program (LMOP). The goals of LMOP are to reduce methane emissions from landfills by:

- Encouraging environmentally and economically beneficial landfill gas-to-energy development
- Removing barriers to developing landfill gas-to-energy (LFGTE) projects

To achieve these goals, EPA establishes alliances with four key constituencies:

- State environmental and energy agencies
- Energy users/providers (including investor-owned, municipal and other public power utilities, cooperatives, direct end users, and power marketers)
- Industry (including developers, engineers, and equipment vendors)
- Community partners (municipal and small private landfill owners and operators; cities, counties, and other local governments; and community groups)

EPA establishes these alliances through a Memorandum of Understanding (MOU). By signing the MOU, each ally and partner acknowledges a shared commitment to promoting landfill gas energy recovery at sold waste landfills, recognizes that the widespread use of landfill gas as an energy resource will reduce methane and other air emissions, and commits to certain activities that enhance the development of this resource.

As of January 1999, over 240 landfill methane recovery projects are operating in the United States. EPA estimates that up to 750 landfills could install economically viable landfill energy projects by the year 2000.

LFGTE PROJECTS IN WASHINGTON

No LFGTE projects are operating in Washington as of Fall 1995. However, six landfills are actively pursuing energy recovery projects. The projects range from a 250 kW project at the Whatcom County landfill to a 25 MW project at the Cedar Hills landfill in King County. Other proposed LFGTE projects include Tacoma's landfill, Seattle's Kent-Highland landfill, Spokane's Northside landfill and Port Angeles' landfill. A recently proposed innovative LFG project for the Hidden Valley landfill involves the conversion of LFG to methanol to be marketed as a fuel or a chemical.

Eleven additional landfills are candidates for LFGTE projects, including a large regional landfill that is proposing to stimulate gas production by recirculating leachate and adding water. Installation of a LFG-to-energy project at each of these eleven candidate landfills has the potential to reduce methane emissions by 2.6 million tons per year. Assuming the current proposed projects are successful, the Washington State Allies have a goal of 14 projects on-line by the year 2000.

Table A Candidate Landfills

Landfill Name	County	Operational Status
Centralia	Lewis	Closed
Cheyne Landfill	Yakima	Open
Cowlitz County	Cowlitz	Open
Greater Wenatchee	Douglas	Open
Hawks Prairie	Thurston	Open
Hidden Valley	Pierce	Open
Leichner	Clark	Closed
Olympic View	Kitsap	Open
Roosevelt Regional	Klickitat	Open
Terrace Heights	Yakima	Open
11th Landfill	—	—

Source: EPA's Opportunities for Landfill Gas Energy Recovery in Washington: Draft Profiles of Candidate Landfills and Current Projects and information provided by the state of Washington.

2. Electricity Restructuring and LFGTE

What Is Electricity Restructuring?

Electricity restructuring refers to the introduction of competition into both the wholesale and retail electricity markets. Until now, electric utilities operated as monopolies authorized by federal and state regulatory authorities as the sole provider of electric service to consumers within a specific service territory. Under restructuring, utilities will lose these monopolies, enabling other energy providers to compete for their customers. The result will be more energy options for consumers, lower energy prices, and greater use of renewable energy sources.

Efforts to restructure the electric utility industry began in 1978 with passage of the Public Utilities Regulatory Policies Act (PURPA), which required utilities to buy a portion of their power from unregulated power generators in an effort to encourage the development of smaller generating facilities, new technologies, and renewable energy sources. The National Energy Policy Act of 1992 (EPACT) expanded on PURPA, allowing more types of unregulated companies to generate and sell electricity, effectively creating a competitive wholesale market for electric power.

Restructuring at the retail level has been a hot issue in many states since the passage of EPACT, which delegated states the authority to introduce competition among electric utilities within their borders. As of January 1999, 14 states have enacted some form of restructuring legislation, while the remaining 36 are considering such legislation.

How Do These Changes Affect Landfill Gas Recovery?

Many states are including renewable energy provisions in their restructuring legislation. Such provisions mandate utilities to include a certain percentage of electricity generated from renewable, or "green energy," sources into their energy mixes. LFGTE is one such green energy source.

In March 1998, the Clinton Administration unveiled its "Comprehensive Electricity Competition Plan" to restructure the electricity industry nationwide. Contained in that proposal is a Renewable Portfolio Standard (RPS) that would guarantee that a minimum percentage of the nation's electricity be powered by green energy. Energy service providers would be required to cover a percentage of their electricity sales with generation from non-hydroelectric renewable sources such as wind, solar, geothermal, and biomass (which includes LFGTE).

Marketing Landfill Gas Recovery as Green Power

One of the emerging areas and most promising mechanisms to encourage utilities and other energy marketers to participate in LFGTE projects is the development of green marketing programs. Green marketing programs are designed to enable energy marketers to position renewable energy products (including LFGTE) as premium products, and therefore, collect a premium price from their customers. In addition, green marketing allows energy marketers in competitive marketplaces to differentiate their energy product, and allows utilities in non-restructured marketplaces to gain critical product marketing experience in preparation for competition. However, the general public is less familiar with LFGTE than other sources of renewable energy; support from the LMOP is often critical to ensure the success of early LFGTE green marketing efforts.

Get the Latest Information on Electricity Restructuring in Your State

For up-to-date information on electricity restructuring in Washington, visit the National Conference of State Legislatures Web site at http://www.ncsl.org/programs/esnr/restru.htm. This site contains a glossary of terms related to restructuring, as well as links to the full text of restructuring legislation passed by states.

3. The Goals of This Primer

Permits, incentive programs, and policies for LFGTE project development vary greatly from state to state. To guide LFGTE project developers through the state permitting process and to help them to take advantage of state incentive programs, the LMOP has worked with state agencies to develop individual primers for states participating in the State Ally Program. By presenting the latest information on federal and state regulations and incentives affecting LFGTE projects in this primer, the LMOP and Washington state officials hope to facilitate development of many of the landfills listed in Table A.

To develop this primer, the state of Washington identified all the permits and funding programs that could apply to LFGTE projects developed in Washington. It should be noted, however, that the regulations, agencies, and policies described are subject to change. Changes are likely to occur whenever a state legislature meets, or when the federal government imposes new directions on state and local governments. LFGTE project developers should verify and continuously monitor the status of laws and rules that might affect their plans or the operations of their projects.

Who Should Read This Primer?

Throughout the country, the number of LFGTE projects is growing. Recovering methane gas at solid waste landfills provides significant environmental and economic benefits by eliminating methane emissions while capturing the emissions' energy value.

This primer is designed to help realize the potential of landfill gas recovery in the state of Washington. It provides information for developers of LFGTE projects, as well as all other participants in such projects: landfill operators, utility companies, independent power producers, utility regulators, state regulators, engineers, and equipment vendors.

What Information Does This Primer Contain?

If you are interested in taking advantage of the economic and environmental opportunities in LFGTE recovery in Washington, you will need to know the regulatory requirements that apply. You will also need to know what economic incentives are available to help make these projects more economically viable.

To address these needs, this primer covers the following topics:

- Federal Standards and Permits. This section provides information on federal regulations that may pertain to LFGTE projects, including solid waste, air quality, and water quality regulations.
- State Standards and Permits. This section provides information on state permits that apply to landfill gas recovery projects in Washington.
- Local Standards and Permits. Local permit approval will often be needed for LFGTE projects. This section offers a step-by-step process you can follow to secure this approval.
- Federal Incentive Programs. This section presents information on federal incentives that may apply to LFGTE projects.
- State Incentive Programs. This section presents information on the environmental infrastructure financing opportunities that are available in the state of Washington.

4. Where Can I Go for More Information?

The Washington State Ally Contacts Are:

Jim Kerstetter
Washington Energy Office
925 Plum St. MS 43165
Olympia, WA 98504-3165
(360) 956-2069

Jim Knudson
Solid Waste Services Program
Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600
(360) 407-6110

Part 1: Standards and Permits

1. Overview Of Federal Standards And Permits

The following section discusses federal regulations that may pertain to LFGTE projects. LFGTE projects can be subject to solid waste, air quality, and water quality regulations. The federal regulations are presented in general terms, because individual state/local governments generally develop their own regulations for carrying out the federal mandates. Specific requirements may therefore differ among states. Project developers will have to contact relevant federal agencies and, in some cases, state agencies for more detailed information and applications. The discussion of each key federal standard/permit contains three components:

- Importance of the standard/permit to LFGTE project developers
- Applicability to LFGTE projects
- Description of each standard/permit

1.1 Resource Conservation and Recovery Act Subtitle D

Importance Before a LFGTE project can be developed, all Resource Conservation and Recovery Act (RCRA) Subtitle D requirements (i.e., requirements for non-hazardous waste management) must be satisfied.

Applicability Methane is explosive in certain concentrations and poses a hazard if it migrates beyond the landfill facility boundary. Landfill gas collection systems must meet RCRA Subtitle D standards for gas control.

Description Since October 1979, federal regulations promulgated under Subtitle D of RCRA required controls on migration of landfill gas. In 1991, EPA promulgated landfill design and performance standards; the newer standards apply to municipal solid waste landfills that were active on or after October 9, 1993. Specifically, the standards require monitoring of LFG and establish performance standards for combustible gas migration control. Monitoring requirements must be met at landfills not only during their operation, but also for a period of 30 years after closure.

Landfills affected by RCRA Subtitle D are required to control gas by establishing a program to periodically check for methane emissions and prevent offsite migration. Landfill owners and operators must ensure that the concentration of methane gas does not exceed:

- 25 percent of the lower explosive limit for methane in facilities' structures
- the lower explosive limit for methane at the facility boundary

Permitted limits on methane levels reflect the fact that methane is explosive within the range of 5 to 15 percent concentration in air. If methane emissions exceed permitted limits, corrective action (i.e., installation of a LFG collection system) must be taken. Subtitle D may provide an impetus for some landfills to install energy recovery projects in cases where a gas collection system is required for compliance (see 40 CFR Part 258 for more information).

1.2 Clean Air Act (CAA)

The CAA regulates emissions of pollutants to ensure that air quality meets specified health and welfare standards. The CAA contains two provisions that may affect LFGTE projects: New Source Performance Standards (NSPS) and New Source Review (NSR). Facilities that are planning to construct a new LFGTE system or that plan to modify a landfill operation to incorporate a LFGTE system must obtain an Authority to Construct (ATC) permit from the responsible air regulatory agency if emissions from the project exceed the major facility emission thresholds. The ATC permit specifies the NSPS and NSR requirements that the project must meet. Once construction is complete, the facility must obtain an operating permit that meets the requirements defined in Title V of the 1990 CAA Amendments. The general requirements of NSPS, NSR, and Title V for LFGTE projects are discussed below.

Non-Methane Organic Compounds Emissions (NMOCs): New Source Performance Standards (NSPS):

Importance LFGTE projects can be part of a compliance strategy to meet EPA's new emissions standards for landfill gas.

Applicability Landfills meeting certain design capacity, age, and emissions criteria are required to collect LFG and to either flare it or use it for energy.

Description EPA final regulations under Title I of the CAA Amendments require affected landfills to collect and control LFG. Specifically, the CAA targets reductions in the emissions of NMOCs found in LFG because they contribute to local smog formation. For landfills that received waste after November 8, 1987 ("existing landfills"), the standards are "Emissions Guidelines" (EG), and for landfills that commenced construction, reconstruction, modification, or began accepting waste on or after May 30, 1991 ("new landfills"), the standards are "New Source Performance Standards" (NSPS). The final regulations can be found in the Federal Register, March 12, 1996, Vol. 61, No. 49, pgs. 9907-9944, or can be obtained from the National Technical Information Service (NTIS) at (703) 487- 4650 or http://www.ntis.gov. Ask for PB96 - 153465.

The basic requirements are the same for both existing and new landfills. Landfills that meet both of the following criteria must comply with the regulations.

- Capacity—maximum design capacity greater than or equal to 2.5 million Mg (or 2.5 million cubic meters).[1]
- Emissions—annual NMOC emission rate is greater than 50 Mg.

Air Emissions: New Source Review (NSR) Permitting Process

Importance New LFGTE projects may be required to obtain construction permits under New Source Review (NSR). Depending on the area in which the project is located, obtaining these permits may be the most critical aspect of project approval.

Applicability The combustion of LFG results in emissions of carbon monoxide and oxides of nitrogen. Requirements vary for control of these emissions depending on local air quality. The relevant standards for a particular area will be discussed in Section 2, State Standards and Permits. Applicability of these standards to LFGTE projects will depend on the level of emissions resulting from the technology used in the project and the project's location (i.e., attainment or non-attainment area).

[1]Landfills with less than 2.5 million Mg are required to file a design capacity report.

Description CAA regulations require new stationary sources and modifications to existing sources of certain air emissions to undergo NSR before they can operate. The purpose of these regulations is to ensure that sources meet the applicable air quality standards for the area in which they are located. Because these regulations are complex, a landfill owner or operator may want to consult an attorney or expert familiar with NSR for more information about permit requirements in a particular area.

The existing CAA regulations for attainment and maintenance of ambient air quality standards regulate six criteria pollutants — ozone, nitrogen dioxide (NO2), carbon monoxide (CO), particulate matter (PM-10), sulfur dioxide (SO2), and lead. The CAA authorizes the EPA to set both health- and public welfare-based national ambient air quality standards (NAAQS) for each criteria pollutant. Areas that meet the NAAQS for a particular air pollutant are classified as being in "attainment" for that pollutant and those that do not are in "non-attainment." Because each state is required to develop an air quality implementation plan (called a State Implementation Plan or SIP) to attain and maintain compliance with the NAAQS in each Air Quality Control Region within the state, specific permit requirements will vary by state. (See 40 CFR 51.160-51.166 for more information.)

The location of the LFGTE project will dictate what kind of construction and operating permits are required. If the landfill is located in an area that is in attainment for a particular pollutant, the LFGTE project must undergo Prevention of Significant Deterioration permitting. Nonattainment Area permitting is required for those landfills that are located in areas that do not meet the NAAQS for a particular air pollutant. Furthermore, the level of emissions from the project determines whether the project must undergo major NSR or minor NSR. The requirements of major NSR permitting are greater than those for minor NSR. The following provides more detail on new source permits:

Prevention of Significant Deterioration Permitting

Prevention of Significant Deterioration (PSD) review is used in attainment areas to determine whether a new or modified emissions source will cause significant deterioration of local air quality. The State air office can assist LFG project developers in determining whether a proposed project requires PSD approval.

All areas are governed to some extent by PSD regulations because no location is in nonattainment for all criteria pollutants. Applicants must determine PSD applicability for each individual pollutant. For gas-fired sources, PSD major NSR is required if the new source will emit or has the potential to emit any criteria pollutant at a level greater than 250 tons per year.

For each pollutant for which the source is considered major, the PSD major NSR permitting process requires that the applicants determine the maximum degree of reduction achievable through the application of available control technologies. Specifically, major sources may have to undergo any or all of the following four PSD steps:

- Best Available Control Technology (BACT) analysis
- Monitoring of local air quality
- Source impact analysis/modeling
- Additional impact analysis/modeling (i.e., impact on vegetation, visibility, and Class I areas)2

Minor sources and modifications (i.e., below 250 tons per year) are exempt from this process, but these sources must still obtain construction and operating air permits (see CFR. 40 CFR 52.21 for more information on PSD).

[2]Class I areas are specified under the Clean Air Act and include national parks. Projects situated within a certain distance from Class I areas are subject to more stringent criteria for emissions levels.

Nonattainment Air Permitting

An area that does not meet the NAAQS for one or more of the six criteria pollutants is classified as being in "nonattainment" for that pollutant. Ozone is the most pervasive nonattainment pollutant, and the one most likely to affect LFGTE projects. A proposed new emissions source or modification of an existing source located in a nonattainment area must undergo nonattainment major NSR if the new source or the modification is classified as major (i.e., if the new or modified source exceeds specified emissions thresholds). To obtain a nonattainment NSR permit for criteria pollutants, a project must meet two requirements:

- Must use technology that achieves the Lowest Achievable Emissions Rate (LAER) for the nonattainment pollutant
- Must arrange for an emissions reduction at an existing combustion source that offsets the emissions from the new project at specific ratios

Potential Exemptions

EPA recently furnished a guidance document to state and regional permitting authorities that provides an exemption from major NSR permitting requirements for landfill projects that qualify as "pollution control projects." An existing landfill that plans to install a LFGTE recovery project may qualify as a pollution control project as long as it reduces non-methane organic compounds (NMOC) at the site. Under the guidance, the permitting authority may exempt the project from major NSR, provided it meets all other requirements under the CAA and the state, including minor source requirements. In nonattainment areas, offsets will still be required, but need not exceed a 1:1 ratio. States have discretion to exercise the increased flexibility allowed by the guidance on a case-by-case basis.

Title V Operating Permit

Importance Many LFGTE projects must obtain operating permits that satisfy Title V of the 1990 CAA Amendments.

Applicability Any LFGTE plant that is a major source, as defined by the Title V regulation (40 CFR Part 70), must obtain an operating permit.

Description Title V of the CAA requires that all major sources obtain new federally enforceable operating permits. Title V is modeled after a similar program established under the National Pollution Discharge Elimination System (NPDES). Each major source must submit an application for an operating permit that meets guidelines spelled out in individual state Title V programs. The operating permit describes the emission limits and operating conditions that a facility must satisfy, and specifies the reporting requirements that a facility must meet to show compliance with the air pollution regulations. A Title V operating permit must be renewed every 5 years.

1.3 National Pollutant Discharge Elimination System (NPDES) Permit

Importance LFGTE projects may need to obtain NPDES permits for discharging wastewater that is generated during the energy recovery process.

Applicability LFG condensate forms when water and other vapors condense out of the gas stream due to temperature and pressure changes within the collection system. This wastewater must be removed from the collection system. In addition, LFGTE projects may generate wastewater from system maintenance and cooling tower blowdown.

Description NPDES permits regulate discharges of pollutants to surface waters. The authority to issue these permits is delegated to state governments by EPA. The permits, which typically last five years, limit the quantity and concentration of pollutants that may be discharged. To ensure compliance with the limits, permits require wastewater treatment or impose other operation conditions. The state water offices or EPA regional office can provide further information on these permits.

The permits are required for three categories of sources and can be issued as individual or general permits. A LFGTE project would be included in the "wastewater discharges to surface water from industrial facilities" category and would require an individual permit. An individual permit application for wastewater discharges typically requires information on:

- Water supply volumes
- Water utilization
- Wastewater flow
- Characteristics and disposal methods
- Planned improvements
- Storm water treatment
- Plant operation
- Materials and chemicals used
- Production
- Other relevant information.

1.4 Clean Water Act, Section 401

Importance LFGTE projects may need CWA Section 401 certification for constructing pipelines that cross streams or wetlands.

Applicability LFG recovery collection pipes or distribution pipes from the landfill to a nearby gas user may cross streams or wetlands. When construction or operation of such pipes causes any discharge of dredge into streams or wetlands, the project may require Section 401 certification.

Description If the construction or operation of facilities results in any discharge into streams or wetlands, such construction is regulated under Section 401. This requirement may affect the construction of LFGTE project facilities or pipelines to transport LFG.

The applicant must obtain a water quality certification from the State in which the discharge will originate. The certification should then be sent to the U.S. Army Corps of Engineers. The certification indicates that such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the Clean Water Act (CWA).

1.5 Other Federal Permit Programs

The following are brief descriptions of how other federal permits could apply to LFGTE project development.

- RCRA Subtitle C could apply to a LFG project if it produces hazardous waste. While some LFG projects can return condensate to the landfill, many dispose of it through the public sewage system after some form of on-site treatment. In some cases, the condensate may contain high enough concentrations of heavy metals and organic chemicals for it to be classified as a hazardous waste, thus triggering federal regulation.
- The Historic Preservation Act of 1966 or the Endangered Species Act could apply if power lines or gas pipelines associated with a project infringe upon an historic site or an area that provides habitat for endangered species.

2. State Standards and Permits

This section provides information on permits required by the State of Washington for the development of a LFGTE project.3 Information provided on each permit includes how the permit is applicable to LFGTE projects, the appropriate agency contact, a description of the permit; the statute/regulation, information required and suggestions for a successful application, the application and review process, the review/approval period, and any fees required. For an overview of required permits, contact information, and length of the review period, see Tables 2.1 and 2.2.

The principal permits required for LFGTE projects in the State of Washington are related to water quality/resource and air quality issues. Depending on the impacts that a project may generate and the location of a project, other requirements or standards may apply to LFGTE projects, such as wetland and natural heritage requirements, that are not discussed in this handbook. Thus, developers should contact state and local agencies for a complete list of applicable permits (see Section 3 for a discussion on potential local permit requirements).4

Before issuing any permits or approvals the Washington State Environmental Policy Act (SEPA) requires state and local agencies to evaluate proposed projects for their environmental impact. The purpose of SEPA is to ensure that environmental values are considered by state and local government officials when making decisions about projects.

The developer of a project must submit a permit application to a local or state agency, who determines whether or not the project is exempt from SEPA. If the project is not exempt, the agency then determines who will be the lead agency for the project. The lead agency is chosen from all relevant agencies requiring permits for the project. The SEPA lead agency is responsible for ensuring that the project is in compliance with all aspects of SEPA. For thermal generation projects of 250 megawatts or greater (very unlikely for a LFGTE project), the lead agency, by law, is the Washington Energy Facility Site Evaluation Council.

When SEPA compliance is required for a project, the developer must complete an environmental checklist, which asks questions about how the project will affect the different elements of the environment such as air, water, etc. The checklist is designed to help the developer and the lead agency identify potential impacts from the project (and to reduce or avoid these impacts, if possible), and to help the lead agency decide whether an Environmental Impact Statement (EIS) is required.5 Based on analysis of the potential environmental impacts identified in the checklist, the lead agency will make a determination as to whether an EIS is needed.

Most projects will not require an EIS. Instead, the agency will issue a determination of non-significance (DNS), which documents the agency's decision that the project will not have a significant adverse environmental impact. The lead agency must send its decision to all agencies that have responsibility for relevant permits or approvals and must give public notice that the DNS has been issued. Any person or agency may submit written comments on the DNS to the lead agency within 15 days from the date of issuance. If any comments are received by the lead agency, they must reconsider the DNS. If the DNS is not disputed, the permit process can then begin.

Table 2.1 Summary Table of State Standards/Permits

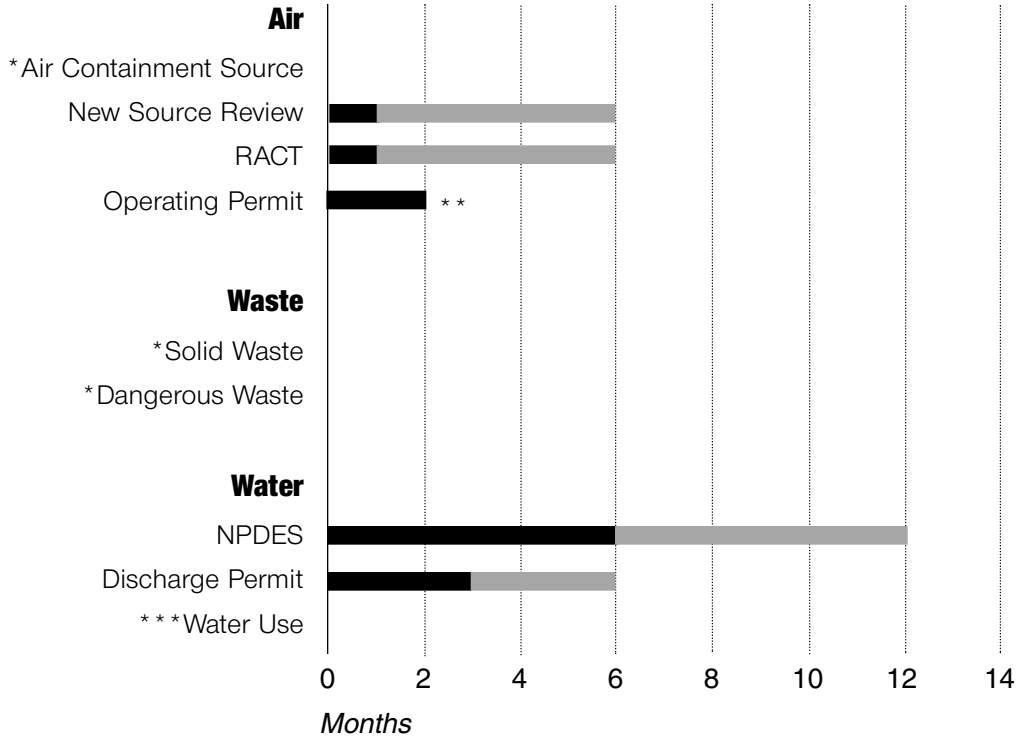
Standard	Permit	Agency/Contact	Review Period
Air	*Air Contaminant Source Registration*	Department of Ecology Headquarters Air Quality Program (360) 407-6810 (Alan Newman) or Regional Office or Local Air Authority	Annual renewal
	New Source Review	Department of Ecology Headquarters Air Quality Program (360) 407-6800 (360) 407-6810 (Alan Newman) or Regional Office or Local Air Authority	0.5 months–6 months
	Reasonably Available Technology Determinations (RACT)	Department of Ecology Headquarters Air Quality Program (360) 407-6810 (Alan Newman) or Regional Office or Local Air Authority	0.5 months–6 months
	Air Operating Permit	Department of Ecology Headquarters Air Quality Program (360) 407-7528 (Tom Todd) or Regional Office or Local Air Authority	60 days up to 3 years
Waste (Dangerous/Solid)	*Solid Waste Permit*	Jurisdictional Health Departments in 33 Districts; for listing call Department of Ecology Solid Waste Services Program (360) 407-6132 (Ellen Caywood)	Annual renewal for most solid waste permits; municipal solid waste landfill permits can be issued for up to 10 years.
	Dangerous Waste Generator Notification	Department of Ecology Headquarters Hazardous Waste & Toxics Reduction Program (360) 407-6700 (Dan Kruger)	One time registration with annual reporting of waste generation.

(chart continued on next page)

Table 2.1 Summary Table of State Standards/Permits, continued

Standard	Permit	Agency/Contact	Review Period
Water	*National Pollutant Discharge Elimination System Permit (NPDES)*	Department of Ecology Water Quality Program (360)407-6400 or Regional Office	6 months–1 year
	State Waste Discharge Permit	Department of Ecology Water Quality Program (360)407-6400 or Regional Office	3 months–6 months
	Water Use and Certificate of Water Right	Department of Ecology Water Resources Program (360) 407-6600 (Doug McChesney) or Regional Office	varies

Table 2.2 Permit Approval Timeline



Notes

Solid black band denotes the minimum review/approval period; gray band the maximum.

* Annual renewal

** From 2 months to 3 years

*** Varies

The remainder of Section 2 contains information about each of the permits required by Washington for projects development. The information is organized in tables and each table contains the following information about the subject permit:

- Applicability to Landfill Gas Projects
- Agency Contact
- Description
- Statute/Regulation
- Information Required/Suggestions
- Application Process
- Review Process
- Review/Approval Period
- Fee

Table 2.3 Air Contaminant Source Registration

Applicability to Landfill Gas Projects	Emissions from equipment used at LFGTE recovery facilities, such as internal combustion engines, are subject to state air regulations. However, LFGTE projects may be exempt from some air permits because they emit less than the de minimis regulated level.
Agency Contact	Department of Ecology, Headquarters or Regional Offices, or the local air authority Department of Ecology, Headquarters P.O. Box 47600, Olympia, Washington 98504-7600 Phone (360) 407-6810 (Alan Newman), Fax (360) 407-6802
Description	If an air pollution source is not required to get an air operating permit, that source must register every year with the Department of Ecology or a local air authority. Through the registration process, the levels and types of air pollution from a given source are classified and regulatory requirements related to air emissions are identified. In addition, the owner or operator of a registered source must maintain records on air emissions and related parameters, and submit an inventory of emissions from the source each year.
Statute/Regulation	*Statutory Authority:* Chapter 70.94.151 RCW *Regulations:* Ch. 173-400 (General Regulations) WAC
Information Required/Suggestions	Emission information and air pollution controls (in-place and proposed).
Application Process	Submit required information on state or local agency-provided forms along with appropriate registration fee to the appropriate local agency or Ecology regional office.
Review Process	The Agency reviews the emissions estimates and accepts/rejects/modifies the emission data for recording in the statewide emissions database. The Agency notifies the source of the Agency's actions on emission data.

Review/Approval Period	Registration and fees submitted to the agency yearly.
Fees	*Department of Ecology:* Periodic fee (annual or less frequent); final fee amounts adopted March 1995 and vary based on the emission estimates. $400/year may be considered a baseline. *Local Air Authority:* Each authority establishes its own fees which will vary among local jurisdictions.

Table 2.4 New Source Review

Applicability to Landfill Gas Projects

Emissions from new or modified equipment used at LFGTE recovery facilities, such as from gas boilers or internal combustion engines, are subject to new source review.

Agency Contact

Department of Ecology, Headquarters or Regional Office Air Quality Program, or the local air authority (see Appendix A)

Department of Ecology, Headquarters
P.O. Box 47600, Olympia, Washington 98504-7600
Phone (360) 407-6810 (Alan Newman), Fax (360) 407-6802

Description

Emission sources proposing to construct a new source or modify an existing source must submit a Notice of Construction Application to the Department of Ecology or the local air authority for the review. Information for additional analysis may be required depending on source complexity and the type and amount of emissions anticipated. The applicant may be required to submit information for one or more of the following:

Prevention of Significant Deterioration (PSD): Major sources (i.e., those emitting >100 tons/year of a regulated pollutant) are required to undergo PSD. This process is designed to prevent degradation of air quality in areas of the state that are complying with ambient air quality standards while still maintaining a margin for future industrial growth.

Lowest Achievable Emission Rates (LAER): New sources are required to undergo this review if their proposed emissions exceed 100 tons per year and they are located within areas where the federal ambient air quality standards are being violated (non-attainment areas). New sources required to comply with LAER must use the very best control options available for limiting their emissions.

Second Tier Analysis: Second tier analysis provides a mechanism for the Department of Ecology to approve toxic air pollutant emissions from a source where it determines that emissions controls represent best available control technology (BACT) and the source demonstrates that risk exposures from emissions to toxic air pollutants are sufficiently low.

Risk Management Decision: A risk management decision is the process of evaluating all likely pathways of exposure from all waste streams (air emissions, water discharges, etc.) to determine if proposed changes will result in a greater benefit to human health and the environment as a whole. This allows the Department of Ecology to approve emissions of toxic air pollutants with a human cancer risk greater than established criteria.

Statute/Regulation

Statutory Authority: Chapter 43.21 and 70.94 RCW

Regulations: Ch. 173-400 (General Regulations); 173-460 (Controls for New Sources of Toxics); and 173-490 (Emission Standards for Volatile Organic Compounds) WAC

Information Required/Suggestions	Notice of Construction Application. This application must include a description of the new or modified source, the types of equipment used that will generate air pollution, the types and amounts of air pollutants released into the air, and proposed methods for air pollution control or prevention.
Application Process	Applications must be submitted to the Department of Ecology or the local air authority.
Review Process	Within 30 days of receiving an application, the permitting authority must determine whether the application is complete. Within 60 days of receiving a complete application, the permitting authority must take final action or initiate public comment. The Department of Ecology or local air authority has review and approval authority for the construction of new sources or modifications to existing sources of air pollution.
Review/Approval Period	Processing time averages 6 weeks, but can range from 3 weeks to 6 months or longer and is highly dependent on project complexity.
Fees	Department of Ecology *Basic Review Fees:* Amounts range from $1,000 to $15,000 depending upon source complexity. *Additional Review Fees:* Prevention of Significant Deterioration - $10,000 Lowest Achievable Emission Rates (LAER) - $10,000 Second Tier Analysis - $7,500 Risk Management Decisions - $5,000 SEPA Reviews - $200 or $2,000 *Fee Reductions for Small Businesses:* Department of Ecology may reduce new source review fees for small business by 50 percent of the estimated fee or $250, whichever is greater. If a source demonstrates extreme economic hardship, the fee may be lowered to $100. Fee Reductions for Pollution Prevention Measures: Department of Ecology may reduce New Source Review fees for an individual source that has implemented approved pollution prevention measures. Local Air Authority Each authority establishes its own fees which will vary among local jurisdictions.

Table 2.5 Reasonably Available Control Technology Determinations

Applicability to Landfill Gas Projects

Existing equipment used at LFGTE recovery projects may be required to undergo a Reasonably Available Control Technology (RACT) determination.

Agency Contact

Department of Ecology, Headquarters, Air Quality Program
P.O. Box 47600, Olympia, Washington 98504-7600
Phone (360) 407-6810 (Alan Newman), Fax (360) 407-6802

Description

Existing industrial and commercial sources may be required by the Department of Ecology to undergo a RACT determination. The RACT process determines the necessity for reasonable available control requirements to reduce or limit air emissions. These requirements identify the lowest emission limit that a source or source category is capable of meeting after considering technological and economic feasibility. The following are the major regulations that may be applicable to landfill gas projects:

Visible Emissions: Prohibits emissions for more than three consecutive minutes, in any 1 hour, of an air contaminant from any emissions unit that at the emission point or within a reasonable distance from the emission point, exceeds 20 percent opacity.

Fallout: Prohibits particulate emissions from any source from being deposited beyond the facility property line in sufficient quantity to interfere with the use and enjoyment of the property upon which the material is deposited.

Fugitive Emissions: Requires that reasonable precautions be taken to prevent fugitive emissions from equipment or processes engaged in material handling, construction, or demolition activities.

Odors: Requires that good practices and procedures be employed to reduce generation of any odor from any source that may unreasonably interfere with any other property owner's use and enjoyment of his or her own property.

Sulfur Dioxide: Prohibits emissions of SO2 in excess of 1000 parts per million by volume, dry, corrected to 7 percent O2.

Concealment and Masking: Prohibits anything that conceals or masks an emission of an air contaminant which would otherwise violate any other regulation or standard.

Fugitive Dust Sources: Requires owners or operators to take reasonable precautions to prevent fugitive dust from becoming airborne.

Statute/Regulation

Statutory Authority: Ch. 70.94.153 and 70.94.154 RCW

Regulation: Ch. 173-400 (General) WAC

Information Required/Suggestions	Same as new source review (See page 11).
Application Process	As required by the local authority or the state.
Review Process	Same as new source review (See page 11).
Review/Approval Period	Review/approval period is approximately 90 days.
Fees	Fees are based on the estimated workload effort to complete the evaluation and determine RACT requirements for an individual industry or a category of similar industries. This specific review results in a one-time fee. The following are the two fee categories: *Individual Source:* • Department of Ecology does RACT analysis and determines control requirements: $1,500 to $15,000 depending on source complexity. • Source does RACT analysis and determines control requirements: $1,000 to $10,000 depending on source complexity. • Department of Ecology reviews replacement of emission control technology at specific source and determines RACT if appropriate: $350 to $850. *Source Categories:* Department of Ecology determines RACT for an entire category of businesses through a rule-making effort: $25,000 to $100,000 depending on source complexity (total fee amount split among sources in category, with an estimated single source fee ranging from $20 to $33,000).

Table 2.6 Air Operating Permits

Applicability to Landfill Gas Projects	Emissions from equipment used at LFGTE recovery facilities, such as internal combustion engines, may be subject to air operating permits.
Agency Contact	Department of Ecology, Headquarters or regional office Air Program, or the local air authority Department of Ecology, Headquarters P.O. Box 47600, Olympia, Washington 98504-7600 Phone (360) 407-6810 (Alan Newman), Fax (360) 407-6802
Description	Major sources of air pollution are required to obtain an air operating permit. Major sources are defined as those that emit greater than 100 tons/year of an air pollutant, 10 tons/year of a hazardous air pollutant, and/or 25 tons/year of a combination of hazardous air pollutants. The operating permit system is an administrative tool for applying other regulations to individual sources by collectively packaging new and existing regulatory requirements into a single document. These include emissions limitations, monitoring, reporting, record-keeping, and compliance requirements. The permit program is designed to enhance accountability and compliance by requiring sources to submit periodic reports certifying compliance with permit terms and conditions. Permits are good for 5 years.
Statute/Regulation	*Statutory Authority:* Chapter 70.94.161 and .162 RCW *Regulation:* Ch. 173-401 (Operating Permit Regulation) WAC
Information Required/Suggestions	Emission rates, orders of approval, emission limits, operating restrictions.
Application Process	These permits are issued by the Department of Ecology and local air authorities, from whom applications should be requested.
Review Process	Reviewed for completeness and compliance with emission limits.
Review/Approval Period	60 days for agency to make completeness determination; 180 days from notice of completeness, the permitting authority should generally issue either a draft permit or a notice of intent to deny the permit application.
Fees	*Department of Ecology:* Fees range from $19,500 to $81,500 per source, depending on the complexity of the source, its air emissions, and the total number of sources that need a permit. *Local Air Authority:* Each authority establishes its own fees which will vary among local jurisdictions.

Table 2.7 Solid Waste Permit

Applicability to Landfill Gas Projects	LFGTE projects are part of the engineering controls associated with solid waste landfills; LFGTE projects involve extraction wells or horizontally placed collection layers in the solid waste and the need to engineer or redesign the final cap and the run-off system.
Agency Contact	Jurisdictional Health Departments. For a listing, call the Department of Ecology at (360) 407-6132.
Description	State solid waste rules, implemented by the local jurisdictional health departments, limit gaseous emissions to avoid onsite and offsite sudden hazards associated with explosive gases.
Statute/Regulation	*Federal Statutory:* Resource Conservation and Recovery Act, as amended *State Authority:* Chapter 70.95 RCW *Regulations:* Chapter 173-304 (Minimum Functional Standards for Solid Waste Handling) and 173-351 (Criteria For Municipal Solid Waste Landfills) WAC.
Information Required/Suggestions	Owners or operators of the landfill would need to modify the existing solid waste permit issued by the Jurisdictional Health Department. Engineering plans and specifications as well as modifications to the closure and/or post closure plans would have to be specified in a permit modification or at the annual renewal of the permit. Jurisdictional health departments generally do not have the engineering expertise to carry out such reviews and rely on technical advice from either the Department of Ecology or engineering consultants.
Application Process	Owners or operators will need to submit two copies of the permit modification application and the application for annual renewal of the permit to the Jurisdictional Health Department.
Review Process	After determining that the application is complete, the Jurisdictional Health Department will forward one copy to the Department of Ecology for review before modifying the permit.
Review/Approval Period	The Jurisdictional Health Department has 90 days to approve or deny the modification. The Jurisdictional Health Department will forward the modified permit to the Department of Ecology for review no more than 7 days after issuance. The Department of Ecology may appeal any permit or permit modification that does not meet the requirements of state regulations to a quasi-judicial body, the Pollution Control Hearings Board.
Fees	The fees will vary depending upon the Jurisdictional Health Department ordinances.

Table 2.9 Dangerous Waste Generator Notification

Applicability to Landfill Gas Projects	Dangerous waste may be found during drilling and the installation of LFGTE collection wells. Infrequently, condensate from LFGTE projects may also be designated as dangerous if the landfill has disposed of dangerous waste in the past. When dangerous waste is found, it must be disposed of at a permitted dangerous waste facility. Since solid waste landfills cannot dispose of dangerous waste without a dangerous waste permit, owners and operators must ship designated wastes and condensate off site and notify as a generator of dangerous waste.
Agency Contact	Department of Ecology, Headquarters, Hazardous Waste and Toxics Reduction Program P.O. Box 47600, Olympia, Washington 98504-7600 Phone (360) 407-6700, Fax (360) 407-6715
Description	Dangerous waste includes solid wastes defined as hazardous by federal statute as well as "state-only" dangerous wastes regulated under state laws and rules. Generators of dangerous waste are responsible for designation of wastes (collection and testing/list checking) and for meeting notification, identification number, accumulation, manifesting and record-keeping rules.
Statute/Regulation	*Statutory Authority:* Chapter 70.105 RCW *Regulations:* Chapter 173-303 (Dangerous Waste Regulation) and 173-305 (Fees)
Information Required/Suggestions	For a State Identification Number, the applicant must submit the company's name, mailing address, ownership, physical location, and type of dangerous waste on the notification form.
Application Process	The generator must fill out a Washington State notification of dangerous waste activities (Form 2) and obtain a EPA/State Identification Number for shipping and reporting purposes.
Review Process	Public review is not required for the notification or assignment of identification numbers. The public has access to all records, however.
Review/Approval Period	Department of Ecology and EPA provide ID numbers within 6 weeks after submission of the required notification Form 2.
Fees	There is no fee for filing Form 2; however, there is an annual $35 education fee for most generators of dangerous waste and a minimum pollution prevention planning fee of $50.

Table 2.9 National Pollutant Discharge Elimination System (NPDES) Permit

Wastewater Discharges to Surface Water from Landfills

Applicability to Landfill Gas Projects	Some LFGTE projects treat condensate, which forms as water and other vapors condense out of the gas steam due to temperature and pressure changes within the gas collection system. Also, energy recovery projects may generate wastewater from system maintenance and cooling tower blowdown. Such wastewater streams are typically combined with landfill leachate streams for treatment and discharge to surface waters.
Agency Contact	Department of Ecology, Water Quality Program, Regional Office (see Appendix A for list of regional contacts).
Description	The discharge of pollutants into the state's surface waters is regulated through NPDES permits. These permits typically place limits on the quantity and concentration of pollutants that may be discharged. To ensure compliance with these limits, permits require wastewater treatment or impose other operating conditions. Limits are based on the use of all, known, available, and reasonable treatment (AKART). Most NPDES permits have a 5-year life span.
Statute/Regulation	*Statutory Authority:* Federal Clean Water Act as Amended; Chapters 90.48 RCW. *Regulations:* Chapter 173-224 WAC (fees), chapter 173-220 WAC (NPDES), chapter 173-201A WAC (Surface Water Quality Standards), chapter 173-240 WAC (Engineering Reports)
Information Required/Suggestions	Individual Permits: An individual permit application for wastewater discharges requires information on water supply volumes, water utilization, wastewater flow, characteristics and disposal methods, planned improvements, stormwater treatment, plant operation, materials and chemicals used, production, and other relevant information. Where the condensate or other liquid waste streams are newly combined with the leachate treatment system, a permit modification of an existing NPDES permit will be needed. An engineering report meeting the requirements of chapter 173-240 WAC will be required at the time of application.
Application Process	The Department of Ecology issues these permits under authority delegated by the U.S. Environmental Protection Agency. Department of Ecology requires applicants to use EPA forms for new or modified permits; Ecology's regional offices supply these forms.
Review Process	The Department of Ecology reviews the NPDES application and prepares a draft permit and fact sheet for public comment.
Review/Approval Period	Processing time for an individual NPDES permit ranges from about 180 days to 1 year, depending on the complexity of the operation.
Fees	Annual fees charged for NPDES permits vary depending on size, complexity, and/or type of facility. For new landfills discharging treated leachate to surface water (not stormwater), fees range from $8,000 (<50 acres) to $30,000 (>250 acres).

Table 2.10 State Waste Discharge Permit

Wastewater Discharges from Landfills to Groundwater or Publicly-Owned Treatment Works

Applicability to Landfill Gas Projects	Some LFGTE projects discharge condensate, which forms as water and other vapors condense out of the gas steam due to temperature and pressure changes within the gas collection system, directly into the municipal sanitary sewer system to be treated at a wastewater treatment plant. Also, energy recovery projects may discharge wastewater, which is generated from system maintenance and cooling tower blowdown, into the sanitary sewer system or to ground water.
Agency Contact	Local Department of Ecology Regional Office, Water Quality Program (see Appendix A for a list of regional contacts).
Description	State Waste Discharge permits regulate the discharge or disposal of (1) industrial, commercial, or municipal waste material into the state's groundwaters, (2) the discharge of industrial or commercial wastes into municipal sanitary sewer systems, and (3) use of water reclaimed from sewage treatment plants. Permits place limits on the quality and concentrations of contaminants that may be discharged. To ensure compliance with these limits, permits require wastewater treatment or impose other operational conditions. Limits are based upon the use of all, known, available, and reasonable treatment (AKART).
Statute/Regulation	*Statutory Authority:* Chapters 90.48; 90.52; 90.54 RCW *Regulations:* Chapters 173-216 (State permit system); 173-240 (Engineering Reports); 173-200 (Groundwater quality standards); 173-224 (Fees) WAC.
Information Required/Suggestions	The permit application requires information on water supply volumes; water utilization; wastewater flow, characteristics and disposal methods; planned improvements; stormwater treatment; plant operation; materials and chemicals used; production; and other relevant information including, when appropriate, an engineering report under chapters 173-240 WAC.
Application Process	The Department of Ecology Regional Office, Water Quality Program supplies state waste discharge permit application forms.
Review Process	The Department of Ecology reviews the state discharge application and prepares a draft permit and fact sheet for public comment.
Review/Approval Period	In general, permits are issued within 90 to 180 days after the Department of Ecology receives a complete application. More complex permits may take longer. State permit applications automatically become temporary permits 60 days after the application is formally accepted by the Department of Ecology.
Fees	Annual fees charged for NPDES permits vary depending on size, complexity, and/or type of facility. For new landfills discharging treated leachate to surface water (not stormwater), fees range from $8,000 (<50 acres) to $30,000 (>250 acres).

Table 2.11 Permit to Withdraw or Divert Surface or Ground Water

Water Use Permit and Certificate of Water Right

Applicability to Landfill Gas Projects	If the landfill is not connected to a municipal water system, and the withdrawal rate is greater than 5,000 gallons per day, a permit to withdraw groundwater or surface water is needed for the LFGTE project.
Agency Contact	Department of Ecology Regional Office, Water Resources Program (See Appendix A for specific information).
Description	The Department of Ecology regulates the withdrawal of water from surface and ground sources.
Statute/Regulation	*Statutory Authority:* Chapters 18.104; 43.27A; 90.03; 90.14; 90.16; 90.44; 90.54 RCW *Regulations:* Chapters 173-100 (Groundwater Management Areas); 173-150 (Protection of Withdrawal Facilities Associated with Groundwater Rights); 173-160 (Minimum Standards of Well Construction and Maintenance of Water Wells); 173-162 (Regulation and Licensing of Water Well Contractors and Operators); 508-12 (Administration of Surface and Groundwater Codes) WAC.
Information Required/Suggestions	Information required for a permit to use water includes the source of the water supply; the nature and amount of proposed use; how the water will be used; the exact location of the point of diversion or withdrawal; a legal description of the property on which the water is to be used; the signature of the legal landowner; a description of the proposed water system; a map showing source of supply, point of diversion, tie to a legal land corner, and general plan of proposed developments; date construction will be complete; and the date of complete application of water to beneficial use.
Application Process	Contact the Regional Offices for information.
Review Process	Processing of a permit to use water varies depending on project complexity. Public notice is required for applications. To the extent that water is used under the terms of the permit, a water right is established and a Certificate of Water Right is issued to document the water right. Criteria used in issuance include: (1) water availability, (2) beneficial aspects, (3) other users not unduly impacted, and (4) the public interest is served.
Review/Approval Period	Contact the Regional Offices for information; timing will be somewhat dependent on the SEPA process.
Fees	*Claim:* $2 *Application:* Varies depending on the amount of water; $10 minimum. *Permit:* Varies depending on intended use of water; $10 minimum. *Certificate Recording:* $11 with the county auditor.

3. Overview of Local Standards and Permits

Within the framework of federal and state regulation, local governments will have some jurisdiction over LFGTE development in nearly all cases. Typically, local permits address issues that affect the surrounding community. These permits generally fall under the categories of construction, environment and health, land use, and water quality/use. Local governments are also responsible for administering some permits for federal and state regulations in addition to their own. For example, many local governments are responsible for ensuring compliance with federal air quality regulations. It should be noted, however, that some local standards and regulations are more strict than state or federal regulations.

Steps to Successful Local Permits Approval:

The following 6 steps will assist LFGTE project developers achieve successful local permits approval:

Step 1 Determine which local authorities have jurisdiction over the project site.

Step 2 Contact local, city, and/or county planning and public works departments to obtain information about applicable permits and to discuss your plans. Meeting with agency staff to discuss the Landfill Gas project and required permits often helps to expedite the permitting process.

Step 3 Obtain essential information regarding each permit, including:

- information required
- the permitting process that should be followed
- time frames (including submittal, hearing, and decision dates)

Step 4 Obtain copies of the regulations to compare and verify what is required in the permit applications. If they differ, contact the appropriate permitting agency.

Step 5 Submit a complete application. Incomplete applications typically result in processing delays.

Step 6 Attend meetings or hearing where the application will be discussed to respond to any questions that are raised. If questions are not responded to, delays could result.

Typical Local Permits

The table on the following page provides typical local permits and approvals required for LFGTE projects:

Table 3.1 Local Permits and Standards

Permit	Description
Building Permit	Most county/local governments require building permits for construction, which entail compliance with several types of building codes, such as plumbing and electrical. A typical building permit application may require detailed final plans for structures, including electrical and plumbing plans, floor layout, sewage facilities, storm water drainage plan, size and shape of lot and buildings, setback of buildings from property lines and drain field, access, size and shape of foundation walls, air vents, window access, and heating or cooling plants (if included in the design).
Zoning/Land Use	Use Most communities have a zoning and land use plan that identifies where different types of development are allowed (i.e., residential, commercial, and industrial). The local zoning board determines whether a particular project meets local land use criteria, and can grant variances if conditions warrant. A landfill gas project may require an industrial zoning classification.
Storm Water Management	Some local public works departments require a permit for discharges during construction and operation of a LFGTE project. Good facility design that maintains the pre-development runoff characteristics of the site will typically enable the project to meet permitting requirements easily.
Solid Waste Disposal	A LFGTE project may generate solid wastes, such as packaging material, cleaning solvents, and equipment fluids. If the landfill is closed, disposal of these solid wastes may be subject to review by a local authority.
Wastewater	The primary types of wastewater likely to be generated by a LFGTE project include maintenance wastewater and cooling tower blowdown. The city engineer's office should be contacted to provide information about available wastewater handling capacity, and any unique condensate treatment requirements or permits for landfills.
Fire Hazards and Precautions	The mix of gases in landfill gas has a moderate to high explosion potential; methane is explosive in concentrations of 5 to 15 percent in air. Because methane has the potential to migrate from the landfill to onsite or offsite structures, it poses a significant public safety hazard. EPA requires that methane concentrations be less than 5 percent at a landfill property line, and less than 1.5 percent in a facility's structures. County regulations may call for as strict or stricter standards to be observed at the landfill.
Noise	Most local zoning ordinances stipulate the maximum allowable decibel levels from noise sources. These levels vary depending on the location of the site. For example, LFG energy recovery projects located near residential areas will likely have to comply with stricter noise level standards than projects located in non-populated areas.

Table 3.2 Local Permits for the State of Washington

Permit Type	Description	Contact Agency	Local Issue
Building Permit	The construction of a permanent building or an addition to an existing facility requires a permit.	Local city or county office	Addresses any building specifications that are pertinent to that area. In Washington state applicants need to provide proof of an adequate supply of potable water.
Conditional Use Permit	Certain land use activities require a permit. The permit process is used to consider special conditions on a development.	Local city or county office	Conditional uses are land use activities that are subject to public hearing.
Noise Ordinances	Noise abatement and control is the role of local government, and many local entities have adopted noise ordinances.	Local Government, Local Planning Department	Chapter 173-60 WAC establishes noise maximum levels that cannot legally be exceeded.

Part 2: Incentive Programs

1. Overview of Federal Incentive Programs

There are three federal incentive programs that may apply to LFGTE projects: the Section 29 Tax Credit, the Renewable Energy Production Incentive (REPI), and the Qualifying Facilities (QF) Certification. Each program is described below.

1.1 Section 29 Tax Credit

Developers of LFGTE projects who sell LFG to an unrelated third party may qualify for a tax credit under Section 29 of the Internal Revenue Service (IRS) tax code. In order to take advantage of the credits, project developers may bring in an outside party when developing power projects. The Section 29 tax credit was established in 1979 to encourage development of unconventional gas resources, such as landfill gas. Section 29 tax credits are available through 2007 to LFG projects that have a gas sales agreement in place by December 31, 1996 and are placed in service by June 30, 1998. The credit has been extended several times by the U.S. Congress, but there is no guarantee that these extensions will continue. The credit is worth $3.00 per barrel of oil-equivalent (on a MMBtu basis) and is adjusted annually for inflation; currently, it is worth $0.979 per MMBtu — about 1.2 ¢/kWh for a typical landfill gas electricity project.

1.2 Renewable Energy Production Incentive (REPI)

The Renewable Energy Production Incentive (REPI), mandated under the Energy Policy Act of 1992, may provide a cash subsidy of up to $0.015 per kWh to owners and operators of qualified renewable energy sources, such as landfills, that began operation between October 1993 and September 2003.6 The Department of Energy (DOE) will make incentive payments for 10 fiscal years, beginning with the fiscal year in which application for payment for electricity generated by the facility is first made and the facility is determined by DOE to be eligible for receipt of an incentive payment. The period for payment under this program ends in fiscal year 2013.

For further information, contact:

U.S. Department of Energy
National Renewable Energy Laboratory
Golden Field Office
Golden, Colorado 80403
(303) 275-4706

U.S. Department of Energy
Efficiency and Renewable Energy
Forrestal Building, Mail Station EE-10
1000 Independence Avenue, S.W.
Washington, DC 20585
Phone: (202) 586-4564

1.3 Qualifying Facilities Certification

LFGTE projects that generate electricity will benefit from Qualifying Facilities (QF) certification, which is granted through the Federal Energy Regulatory Commission (FERC). The following describes the benefits of QF status and the steps for applying for such status.

The Public Utility Regulatory Policies Act (PURPA) — one of five parts of the National Energy Act of 1978 — was designed to promote conservation of energy and energy security by removing barriers to the development of cogeneration facilities and facilities that employ waste or renewable fuels. Such facilities are called Qualifying Facilities, or QFs. Under PURPA, utilities are required to purchase electricity from QFs at each utility's avoided cost of generating power. PURPA provides that a small power production facility, such as a LFGTE project that meets FERC standards, can become a QF.

In order to apply for QF status, applicants must prepare either (1) a Notice of Self-Certification, which asserts compliance with the FERC's technical and ownership criteria, or (2) an Application for Commission Certification of Qualifying Status, which requires a draft Federal Register notice and which provides actual FERC approval of QF status. In either case, the applicant must also file Form 565, which is a list of questions about the project, and must pay any filing fees associated with certifications, exemptions, and other activities. FERC will provide the QF "Info Packet" that describes the necessary steps, requirements, and background information. After submittal of the initial application, further justifications and submittal of information may be required.

For the QF Info Packet and applications, contact:

Federal Energy Regulatory Commission

Qualifying Facilities Division

825 North Capitol Street, N.E.

Washington, DC 20426

Phone: (202) 208-0571

2. State Incentive Programs

2.1 State Implementation of PURPA

The Washington Utilities and Transportation (WUTC) promulgated rules for determining rates, terms, and conditions governing the purchases of electricity from qualifying facilities and independent power producers by electric utilities. These rules are intended to provide an opportunity for generating resources to compete on a fair and reasonable basis to fulfill a utility's new resource needs. These rules are consistent with the provisions of the Public Utility Regulatory Act of 1978 (PURPA).

For further information, contact:

Jeffrey Showman
Utilities and Transportation Commission
P.O. Box 4250
Olympia, WA 98504-4250
(360) 586-1196

2.2 Regional Bioenergy Program

The Pacific Northwest and Alaska Regional Bioenergy Program is funded by the U.S. Department of Energy. The purpose of this program is to expand the use of biomass energy within this region, emphasizing cost-effective, environmentally sound options. One goal of the program is to demonstrate the technical and economic feasibility of new and emerging bioenergy applications through technology development and demonstration activities. Cost-shared funding of innovative LFGTE projects is available from the program.

For further information, contact:

Jeffrey James
Seattle Support Office
Department of Energy
800 5th Avenue, Suite 3950
Seattle, WA 98104
(206) 553-2079

Appendix A: State Contacts

State Agency Contacts

Washington Department of Ecology

The Washington Department of Ecology (WDOE) is the state's environmental management and protection agency. The WDOE is responsible for ensuring that air, water, and related land resources of the state. The purpose of the WDOE is to balance the needs of the people of the state of Washington and the need to provide for increasing industry, agriculture, residential, social, recreational, economic, and other needs while ensuring that Washington's natural resources are used in a manner that will protect and conserve clean air, waters, and the natural beauty of the state.

Department of Ecology Headquarters

Department of Ecology Headquarters
P.O. Box 47600
Olympia, Washington 98504-7600
Phone: (360) 407-6000
Fax: (360) 407-6989

Eastern Regional Office
(Adams, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman counties)
North 4601 Monroe, Suite 100
Spokane, Washington 99205-1295
Phone: (509) 456-2926
Fax: (509) 456-6175

Northwest Regional Office
(Island, King, Kitsap, San Juan, Skagit, Snohomish, and Whatcom counties)
3190 - 160th Avenue, SE
Bellevue, Washington 98008-5452
Phone: (206) 649-7000
Fax: (206) 649-7089

Southwest Regional Office
(Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Skamania, Thurston, Wahkiakum counties)
P.O. Box 47775
Olympia, Washington 98504-7775
Phone: (360) 407-6300
Fax: (360) 407 6305

Central Regional Office
(Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, and Yakima counties)
15 West Yakima Ave, Suite 200
Yakima, Washington 98902-3401
Phone: (509) 575-2490
Fax: (509) 575-2809

Permit Information Center (PIC)
PIC is a centralized statewide environmental permit information service that provides information on state environmental permits, public notice requirements, processing time, and appeal procedures as well as information on federal and local permits. The PIC can also identify the agencies involved and their locations as well as assemble a Permit Application Packet, tailored to the specific needs of a project.

P.O. Box 47600
Olympia, Washington 98504-7600
Phone: (360) 407-7037
Fax: (360) 407-6902

Air Quality Contacts

Western Washington

Northwest Air Pollution Authority
(Island, Skagit, and Whatcom counties)
Air Pollution Control Officer
302 Pine Street, Suite 207
Mount Vernon, Washington 98273-3852
Phone: (360) 428-1617
1-800-622-4627 (Island & Whatcom Counties)

Northwest Regional Office/Air Quality Program/Department of Ecology
(San Juan County)
3190 - 160th Avenue, SE
Bellevue, Washington 98008-5452
Phone: (206) 649-7082
Fax: (206) 649-7098

Olympic Air Pollution Control Authority
(Clallam, Grays Harbor, Jefferson, Mason, Pacific, and Thurston counties)
Air Pollution Control Officer
909 Sleater-Kinney Road SE, Suite 1
Lacey, Washington 98503-1128
Phone: (360) 438-8768, 1-800-422-5623
Fax: (360) 491-6308

Puget Sound Air Pollution Control Agency
(King, Kitsap, Pierce, and Snohomish counties)
Air Pollution Control Officer
110 Union Street, Suite 500
Seattle, Washington 98101-2038
Phone: (206) 343-8800, 1-800-552-3565
Fax: (206) 491-6828

Southwest Air Pollution Control Authority
(Clark, Cowlitz, Lewis, Skamania, and Wahkiakum counties)
Air Pollution Control Officer
1308 N.E. 134th Street, Suite D
Vancouver, Washington 98685-2747
Phone: (360) 574-3058, 1-800-633-0709
Fax: (360) 576-0925

Eastern Washington

Benton County Clean Air Authority
Air Pollution Control Officer
650 George Washington Way
Richland, Washington 99352
Phone: (509) 943-3396
Fax: (509) 943-0505

Department of Ecology/Air Quality Program/ Central Regional Office
(Chelan, Douglas, Kittitas, Klickitat, and Okanogan counties)
15 West Yakima Avenue, Suite 200
Yakima, Washington 98902-3401
Phone: (509) 575-2486
Fax: (509) 575-2809

Department of Ecology/Air Quality Program/ Eastern Regional Office
(Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Stevens, Walla Walla, and Whitman counties)
North 4601 Monroe, Suite 100
Spokane, Washington 99205-1295
Phone: (509) 456-3284
Fax: (509) 456-6175

Spokane County Air Pollution Control Authority
Air Quality Control Officer
West 1101 College Avenue, Suite 403
Spokane, Washington 99201
Phone: (509) 456-4727
Fax: (509 459-6828

Yakima County Clean Air Authority
Air Pollution Control Officer
6 - S. 2nd Street, Room 1016
Yakima, Washington 98901
Phone: (509) 575-4116
Fax: (509) 575-6954

Notes